

(No Model.)

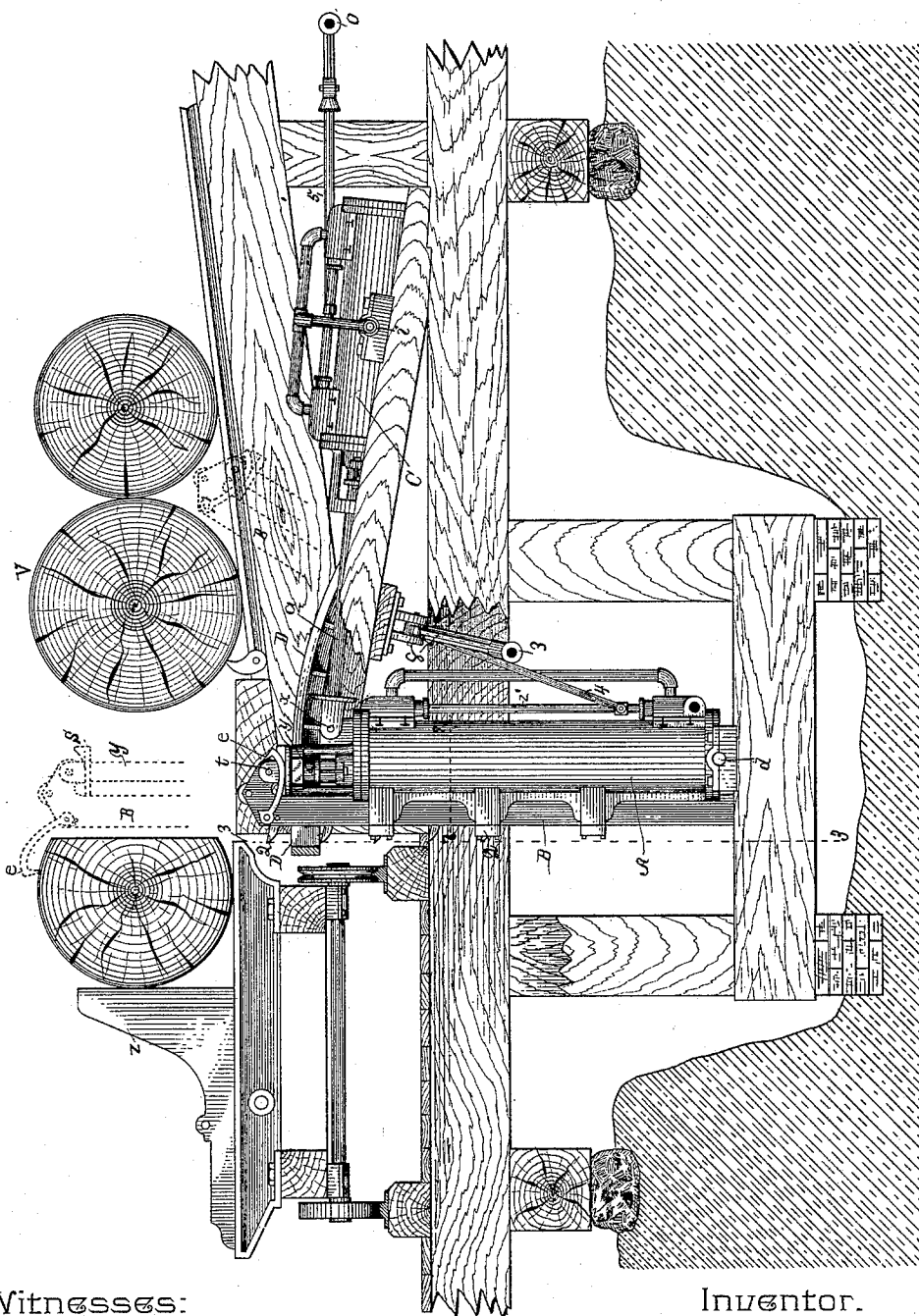
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W. E. HILL.
LOG LOADER AND TURNER.

No. 466,682.

Patented Jan. 5, 1892.

Fig. 1



Witnesses:

Walter S. Wood
Edith L. Perkins.

Inventor.

William E. Hill
By Lucius C. West
Att'y.

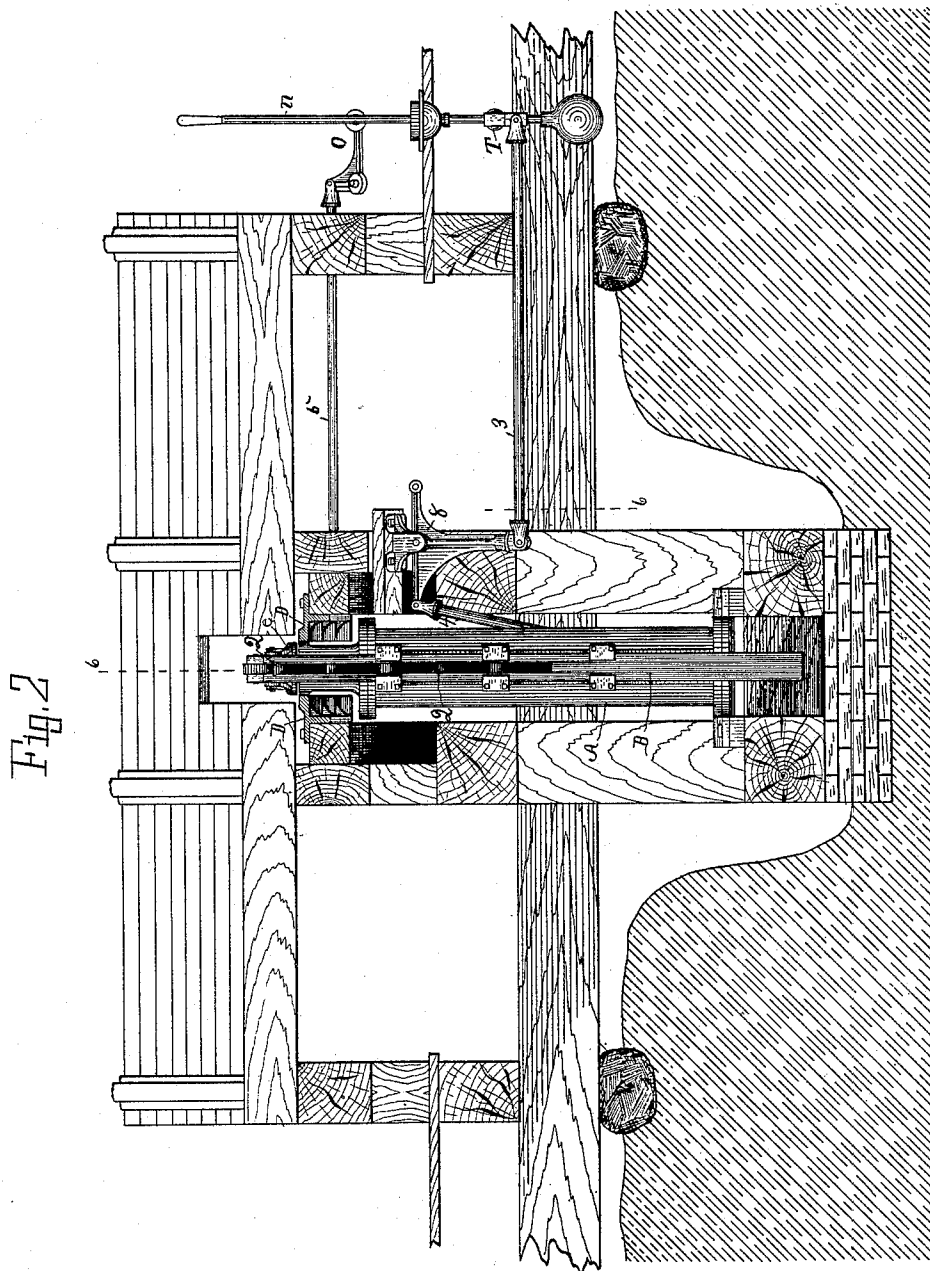
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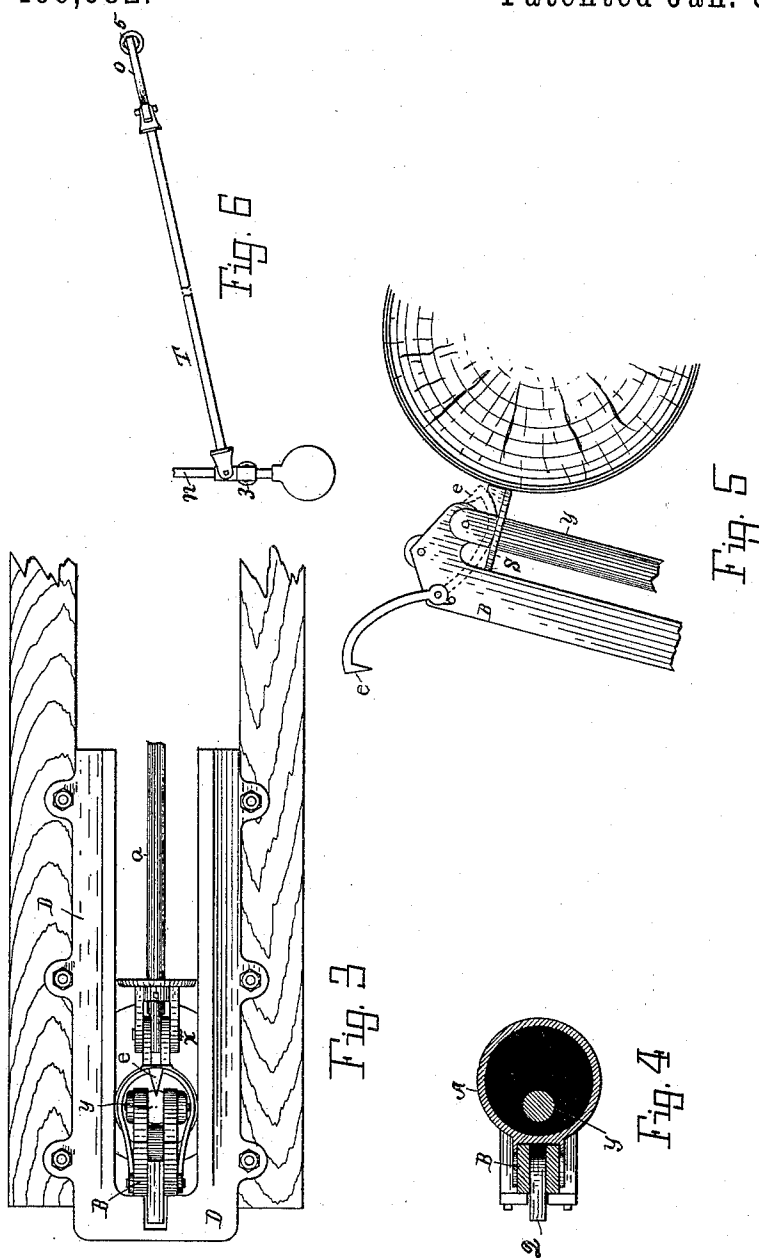
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UNITED STATES PATENT OFFICE.

WILLIAM E. HILL, OF KALAMAZOO, MICHIGAN.

LOG LOADER AND TURNER.

SPECIFICATION forming part of Letters Patent No. 466,682, dated January 5, 1892.

Application filed April 7, 1891. Serial No. 388,046. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. HILL, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Log Loader and Turner, of which the following is a specification.

This invention relates to that class of log loaders and turners employing piston-rods of steam-cylinders for operating the log-loading bar.

One important feature of this invention consists in forming a guideway in the side of one of the cylinders and loosely locating the tooth-bar therein, said tooth-bar being reciprocated by the piston-rod, which is attached to it.

Another important feature is to combine such a construction with a piston-rod of another cylinder, in a manner to oscillate the other cylinder and its log-loading bar during the endwise movement of said bar.

Other features and the objects of the invention will appear in the following description and the claims.

In the drawings forming part of this specification, Figure 1 is an elevation with parts in section on line 6 6 in Fig. 2, looking from a point at the right. Fig. 2 is a sectional elevation on line 3 3 in Fig. 1, looking from a point at the left; Fig. 3, a broken plan of enlarged lettered details from Fig. 1; Fig. 4, a section on line 7 7 in Fig. 1, looking from a point above; Fig. 5, enlarged lettered details from Fig. 1; and Fig. 6, lettered details in Fig. 2, looking from a point at the right.

Referring to the lettered parts of the drawings, A is an upright steam-cylinder mounted upon a trunnion *d* at the base. The tooth-bar B has slide-bearings in the side of the cylinder A, Figs. 1, 2, and 4. The piston-rod *y* of the cylinder A is at one side of the vertical center of said cylinder, as in Figs. 1 and 4, and the upper end of the tooth-bar B is shouldered over the upper end of the piston-rod *y*, and is pivoted thereto at *t*, Fig. 1. The object of locating the piston-rod at one side of the cylinder, as described, is to bring the lifting purchase of the piston-rod as near the vertical center of the tooth-bar as possible, and still have said tooth-bar play in slide-bearings at the side of said cylinder.

The teeth of the tooth-bar are shown at 2, Figs. 1 and 2.

At C is a horizontal steam-cylinder mounted between its two ends upon trunnions *i*. The piston-rod *a* of the cylinder C is pivotally attached at its free end to the top of the cylinder A, as at *x* in Figs. 1 and 3. It will be observed that both of these cylinders thus associated at an angle to each other are adapted to oscillate upon their bearings, which bearings are supported by the mill-frame, which will be more clearly illustrated in the description of the operation, as follows: By letting steam into the cylinder C, so as to move its piston-rod *a* to the right in Fig. 1, the cylinder B and its tooth-bar will be oscillated or canted toward the right. Now by letting steam in the bottom of the cylinder A the tooth-bar B will be thrown upward at an oblique angle behind the log V in Fig. 1, as shown by the dotted position of the tooth-bar B in said figure. Now by letting steam into the cylinder C, so as to throw its piston-rod toward the left, at the same time letting steam into the lower end of cylinder A, so as to throw its piston-rod and tooth-bar upward, the log V will be rolled onto the carriage against the knee *z*. Thus it will be seen that the piston-rod of the cylinder C laterally oscillates the cylinder A and its tooth-bar B. Of course the tooth-bar B is carried downward again by letting steam into the upper end of the cylinder A. The tooth-bar in its movement up and down passes through aperture in a casting or bridge D, Figs. 1 and 3. It will be observed that the tooth-bar E has a friction-roller in the upper end, which may be employed if desired.

On the upper left-hand corner of the tooth-bar *y* is pivoted a cant-hook *e*, Figs. 1 and 5. The upper end of the piston-rod *y* is provided with a shelf *s*, upon which the cant-hook *e* rests when in its down position, as shown in dotted lines in said Fig. 5. The right-hand side of said shelf *s* serves as a bumper to strike against the log behind it when operating the cant-hook. To illustrate, referring to Fig. 1 and the dotted position of the tooth-bar B, cant-hook *e*, and their connections, the cant-hook is in position to operate upon the log, which log has had a slab sawed off from one side of the same next to the tooth-bar,

the design being to turn said log over, so that the flat side will rest upon the carriage. The cant-hook is thrown over in position to engage the log by a sudden upward thrust of the tooth-bar, which tends to toss said cant-hook upward, and then by a sudden downward and lateral thrust of the tooth-bar the cant-hook is left in the position shown in Fig. 1, ready to engage the log. In some instances the striking of the bumper of the piston-rod *y* against the log *V* will assist in throwing said cant-hook to the desired position and in any event damage to the tooth-bar *B* and the piston-rod *y* is prevented. Of course it will now be seen by carrying the piston-rod *y* and tooth-bar *B* downward and the piston-rod *a* toward the right the log will be turned on the carriage, bringing its flat side downward, as stated. The log may be turned upon the carriage by raising the tooth-bar *B* vertically, allowing the teeth to come in contact with the side of said log, as in the ordinary manner of turning logs on the carriage with tooth-bars. By employing one of the cylinders to oscillate the other and having guide-bearings in one of the cylinders for the tooth-bar, as here shown, I secure simplicity and compactness and greater strength and power of the operating means as compared with prior constructions.

At *n* is an operating-lever having a universal movement, which lever is connected with the valve-rod *z'* of the cylinder *A* by means of rods 4 3 and bell-crank 8 and with the valve-rod of the other cylinder by means of rods *T* 5 and bell-crank *O* of a construction substantially like that particularly shown in Letters Patent granted to me October 29, 1889, No. 413,721, by which steam can be let onto or off from either cylinder separately or in unison by means of a single lever in the hand of the operator; but so far as this lever and its connections with the valves of the cylinders in this present case is concerned I base no claim upon them, and for a better understanding of the same reference should be had to the Letters Patent referred to.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A log-loading machine comprising two oscillating steam-cylinders at an angle to each

other, the piston-rod of one of said cylinders being pivotally attached to the free end of the other cylinder, a tooth-bar having slide-bearings in the side of the latter-named cylinder and attached to the piston-rod thereof, and means for operating the piston-rods of said steam-cylinders, substantially as set forth.

2. A log-loading machine comprising two oscillating steam-cylinders at an angle to each other, the piston-rod of one of said cylinders being pivotally attached to the free end of the other cylinder, a tooth-bar having slide-bearings in the side of the latter-named cylinder and attached to the piston-rod thereof, a cant-hook pivotally attached to the upper end of said tooth-bar, and means for operating the piston-rods of said steam-cylinders, substantially as set forth.

3. The combination of the upright oscillating steam-cylinder, said cylinder having a piston-rod at one side of its vertical center, a tooth-bar having slide-bearings in the side of said cylinder, said tooth-bar being shouldered laterally at the top and attached to the free end of the piston-rod thereof, and a horizontal oscillating steam-cylinder having a piston-rod, the free end of which is pivotally attached to the upper end of the upright cylinder, substantially as set forth.

4. The combination of the upright oscillating steam-cylinder and piston-rod thereof, said piston-rod being provided at the upper end with the shelf, a log-loading bar having slide-bearings in the side of said upright steam-cylinder, the upper end of said bar being attached to the piston-rod thereof, a cant-hook pivoted to the upper end of said bar and arranged to rest upon said shelf when in its down position, the horizontal oscillating steam-cylinder and its piston-rod, said rod being pivotally attached to the upper end of the upright cylinder, and means for operating the piston-rods of said cylinders, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

WILLIAM E. HILL.

Witnesses:

D. B. SALTSMAN,
N. M. WILLIAMS.